

Remarks/Arguments

Summary of the Office Action

Claims 1-21 stand rejected under 35 U.S.C. §103(a).

Claims 1, 7, 10, 12, 16, 17, and 21 stand rejected under 35 U.S.C. §103(a) as being unpatentable over Cheng et al. (U.S. Patent No. 5,557,791) (hereinafter Cheng), and Chaudhuri et al. (U.S. Patent No. 6,169,983) (hereinafter Chaudhuri).

Claims 2, 3, 4, 6, 11, 13, 14, 18, 19, and 20 stand rejected under 35 U.S.C. §103(a) as being unpatentable over Cheng and Chaudhuri, and further in view of Whang et al. (U.S. Patent No. 6,349,308) (hereinafter Whang).

Claim 5 stands rejected under 35 U.S.C. §103(a) as being unpatentable over Cheng, Chaudhuri and Whang, and further in view of Beavin et al. (U.S. Patent No. 6,272,487).

Claims 8, 9, and 15 stand rejected under 35 U.S.C. §103(a) as being unpatentable over Cheng and Chaudhuri, and further in view of Nelson et al. (U.S. Patent No. 6,243,713).

The Present Claims Patentably Distinguish Over The References Of Record

Independent Claim 1

Independent claim 1 stands rejected under 35 U.S.C. §103(a) as being unpatentable over Cheng and Chaudhuri.

Although the Whang patent was not applied against claim 1, the teachings of Whang are relevant for the purpose of determining what the Cheng and Chaudhuri references might suggest to one of ordinary skill in the art when discussing an index. In particular, Whang teaches that, when retrieving documents, structured data and unstructured data are treated differently and separately from each other. For example, in column 1, lines 31-37, Whang states that document retrieval based on attributes of unstructured data (e.g. text) is well performed by an information retrieval system, while document retrieval based on attributes of structured data is performed by a database management system. Whang then explains that for document retrieval based on both data types, "tight coupling of the database management system and information retrieval is necessary." (see column 1, lines 38-40).

Therefore, Whang teaches that special considerations and additional steps are necessary when processing queries with both unstructured and structured data types. Furthermore, since two different types of systems (e.g. information retrieval system and database management system) are used to process both data types, separate indexes are used for each data type.

Since special considerations are necessary for processing queries with both data types, one of ordinary skill would not assume that an index, which may be mentioned in a reference, is an index generated from unstructured and structured data columns. As such, when the Chaudhuri patent generically refers to an index without further detail, one of ordinary skill would assume that the index is not an index that handles special considerations. Indeed, since the purpose of Chaudhuri is to save storage space by merging two indexes into one index, it must be presumed that the two indexes are of the same type and have the same format. Chaudhuri provides no suggestion to the contrary.

Based on the teachings of Chaudhuri, one of ordinary skill would not interpret the merged index of Chaudhuri to contain or apply to an index generated from unstructured and structured data columns as recited in present claim 1. Such an interpretation goes beyond the scope of Chaudhuri. Furthermore, the merged index of Chaudhuri is created from pre-existing indexes, while present claim 1 recites generating a combined index of unstructured and structured data columns which comes from the database. Generating an index from indexes does not suggest generating an index from data columns. For this additional reason, Chaudhuri fails to teach or suggest present claim 1 and fails to cure the short comings of Cheng.

Cheng is directed to and describes joining two database tables without sorting the inner table (see Abstract). Cheng is not concerned with and fails to described any systems or methods for generating indexes. One of ordinary skill in the art clearly understands that a database table is a separate and independent structure from an index. Cheng mentions that one table may be sorted or accessed using an index (see Abstract line 9, and column 7, lines 1-2, and column 8, lines 26-28) but provides no further discussion as to how the index is built, what the index is built from, or what type of data the index contains. One of ordinary skill would understand that the index is a pre-generated index that is simply used by the Cheng invention. "Use of an index...obviates the need to actually sort the outer table." (column 8, lines 26-28). Therefore, Cheng fails to teach or suggest identifying one or more unstructured and structured data columns from a database for the purpose of generating an index as recited in present claim 1.

Based on the above discussion, combining the teachings of Cheng and Chaudhuri still fail to teach or suggest present claim 1. Cheng teaches joining two database tables and does not teach or suggest identifying unstructured and structured data columns for generating an combined index. Chaudhuri teaches merging two pre-existing indexes into one index and does not teach or suggest generating a combined index from unstructured and structured data columns from a database. Thus, claim 1 is not obvious in light of Cheng and Chaudhuri and claim 1 patentable distinguishes over the references of record.

Independent Claim 10

With reference to independent claim 10, page 7 of the Office Action cites the index merge tool 300 of Chaudhuri as teaching the claimed indexing logic. Applicant asserts that Chaudhuri fails to teach or suggest any component that generates an index structure by combining an unstructured data column and a structured data column from a data table as recited in claim 10 as the indexing logic.

As previously described, Chaudhuri teaches merging two pre-existing indexes into one index to save space, and is not concerned with generating an index from a data table as claimed. The index merge tool 300 "...attempts to merge two indexes of the subset I_i and replace those two indexes in the subset I_i with the resulting merged index." (column 8, lines 1-3). Generating an index from a data table is different from merging two pre-existing indexes into one index.

As also previously explained, one of ordinary skill in the art would not interpret Chaudhuri as merging indexes of different types but that the merged indexes must be of the same type and format. E.g. based on the Whang patent, unstructured and structured data are treated differently. The purpose of the invention in Chaudhuri is to save space by merging two indexes. If it is assumed that the two indexes of Chaudhuri were of different types and/or formats, additional complexity would be introduced and the merge process would be problematic. Chaudhuri suggests no such type of index or merging of indexes, and thus, such an assumption would not be made by one of ordinary skill upon reading Chaudhuri.

Chaudhuri does not mention generating an index structure by combining an unstructured data column and a structured data column and thus does not teach or suggest the indexing logic as recited in claim 10. Accordingly, combining the teachings of Chen and Chaudhuri still fails to teach or suggest all elements of claim 10, therefore, claim 10 patentably distinguishes over the references of record.

Independent Claim 16

With reference to independent claim 16, the method relates to a data table that has at least a column of structured data and a column of unstructured data. Claim 16 recites converting unstructured data into a structured-like form and generating an index structure based on the converted unstructured data and the structured data.

Cheng is not concerned with generating an index, but rather, joining two data tables. Thus, Cheng fails to teach or suggest these elements of claim 16. Chaudhuri is directed to merging two pre-existing indexes, and thus, fails to teach or suggest the claimed converting and/or the generating. Since claim 16 recites features not taught or suggested by the references either individually or in combination, claim 16 patentably distinguishes over the references.


Regarding the dependent claims, Applicant re-asserts the previous arguments made, which in view of the foregoing explanations, demonstrate their patentability over the references of record.

Conclusion

For the reasons set forth above, claims 1-21 patentably distinguish over the references of record and are now in condition for allowance. An early allowance of all claims is earnestly solicited.

Respectfully submitted,

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Date


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Remarks

Upon reviewing the status of the present application, applicant has determined that the Patent Office records do not reflect that the After-Final Response was filed on August 2, 2004. The August 2, 2004 Response was faxed to the Patent Office and was received successfully as indicated by the attached fax transmittal sheet indicating a status of "OK" in the upper right-hand corner. Furthermore, the undersigned attorney spoke with Examiner Lewis on August 3, 2004 regarding the Response, which also indicates that it was received by the Patent Office. After reviewing the Response, the Examiner indicated that the application was now in condition for allowance.


The undersigned attorney spoke with Examiner Lewis on October 29, 2004 to determine the status of the application and the response. The Examiner determined that the Response of August 2, 2004 was not indicated by Patent Office records and instructed Applicant to re-submit the Response. A copy of the August 2, 2004 Response is provided in this communication.

No fees are believed to be due as the original Response was filed within two months of the mailing date of the final rejection dated June 1, 2004.

Conclusion

In view of the August 2, 2004 Response, all claims patentably and unobviously distinguish over the references of record and are now in condition for allowance. An early allowance of all claims is earnestly solicited.

Respectfully submitted,

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